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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,980	09/02/2003	Jen-Chun Peng	2450-0537P	1416

2292 7590 12/14/2005

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EXAMINER
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PHAM, TAMMY T

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/651,980		PENG, JEN-CHUN	
	<b>Examiner</b>		<b>Art Unit</b>	
	Tammy Pham		2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/2/2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. (US Publication No: 2003/0011552 A1) in view of Nguyen (US Publication No: 2004/0233146 A1) and Yazawa et al. (US Publication No: 2003/0043090 A1).

As for claims 1 and 9 Ishii teaches of a driving device (Ishii: Fig. 2) for display period control of LCD (Ishii: 137), which can control the grayscale (Ishii: P0-2) of LCD (Ishii: 137) of every scan period connected to the driving device (Ishii: Fig. 2), comprising: a switching unit (Ishii: 139), the switching unit (Ishii: 139) also includes an output which is connected to the LCD (Ishii: 137) in section [0056].

Ishii goes on to teach of a pulse width modulation (Ishii: PWM) grayscale control unit, connected to an external memory (Ishii: 130a-c) and the switching unit (Ishii: 139) for controlling the grayscale display according to image data transmitted by the memory (Ishii: 130a-c) after receiving a start signal in the scan period in section [0063].

Ishii goes on to teach of the steps of converting the grayscale of the image data to a grayscale display duration to control the switching unit (Ishii: 139); controlling the switching unit (Ishii: 139) for connecting the LCD (Ishii: 137) and the GNDA until a second duration is

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due when the grayscale display duration is due; controlling the switching unit (Ishii: 139) for connecting the LCD (Ishii: 137) and the GNDA until a third duration is due when the second duration is due where the display period is sum of the first, the second and the third durations (Ishii: D1-3) in section [0058].

Ishii does not specify that the display is of organic light emitting diode (OLED).

Nguyen teaches that the LCD can easily be replaced with OLED in section [0017].

It would be obvious to one with ordinary skill at the time the invention was made to use OLED as taught Nguelyn in place of LCD as taught by Ishii in order to have thinner and lighter displays (see Nguelyn: section [0023]).

Neither Ishii nor Nguyen teaches of a current buffer, current and voltage source.

Yazawa teaches of a current buffer (Q9), connected to an external current source (11) that provides constant current in section [0087].

Yazawa goes on to teach of an external precharge voltage source (12) in section [0016].

It would be obvious to one with ordinary skill at the time the invention was made to include a current buffer, current and voltage source as taught by Yazawa with the circuit of Ishii with the OLED of Nguyen in order to provide a driving method for a display (see Yazawa: section [0009]).

As for claims 2, 6 and 10 Ishii as modified by Nguyen teaches of the driving device (Fig. 2) for display period control of OLED according to claim 1, wherein the grayscale is more than 2 bits in section [Ishii: 0008].

As for claims 4, 8 and 12, Ishii as modified by Nguyen teaches that the first duration is set according to panel types of OLED in section [Nguyen: 0017]. It is clear that the used of OLED signifies a panel type of OLED.

As for claims 3, 7 and 11 Ishii as modified by Ngueyn teaches of the driving device for display period control of OLCD according to claim 1, wherein the conversion of the grayscale display duration is based on the grayscale for proportional of the second duration, for example, when the grayscale is 2 bits, the grayscale display duration is 0,  $1/3$ ,  $2/3$  and 1-time of the second duration; when the grayscale is 2 bits, the grayscale display duration is 1, [fraction ( $1/7$ )], [fraction ( $2/7$ )] and 1-time of the second duration, and so on in section [0008]. It is inherent that most items, such as the “second duration” can be sub-divided into various parts, such as in thirds or in sevenths as the example in the claim limitations states and therefore the grayscale can be measured in reference to that sub-divisions.

As for claim 5, Ishii as modified by Nguyen teaches of a method for display period control of OLCD for a grayscale display, where a display period including precharge in Fig. 2.

Ishii nor Nguyen does not go into details about the various steps.

Yazawa teaches of including discharge phases is set beforehand, comprising the steps of: receiving image data in section [0017], calculating grayscale display duration according to the image data; precharging the LCD within the precharge phase in section [0027]; supplying a constant current continuously to aid LCD for the grayscale display until grayscale display

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duration is due in section [0026]; discharging the LCD until the display phase is due; and discharging the LCD until the discharge phase is due in section [0027].


It would be obvious to one with ordinary skill at the time the invention was made to include the steps as taught by Yazawa with the circuit of Ishii with the OLED of Nguyen in order to provide a driving method for a display (see Yazawa: section [0009]).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tammy Pham whose telephone number is (571) 272-7773. The examiner can normally be reached on 8:00-5:30 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Tammy Pham  
December 12, 2005

  
SUMATI LEFKOWITZ  
SUPERVISORY PATENT EXAMINER